EML

Environmental Measurements Laboratory

"A Federal Resource"

INTERNATIONAL ACTIVITIES IN ENVIRONMENTAL MEASUREMENTS

RADIOLOGICAL ASSESSMENT

Joint Russian-American Field Studies at Mayak Production Association

EML is participating as the federal technical lead laboratory in the Russian-American subsurface contaminant transport studies near the Mayak site in Russia conducted under the auspices of the Joint Coordinating Committee for Environmental Restoration and Waste Management (JCCEM) between the DOE Office of Environmental Management (EM) and the Ministry of Atomic Energy (MINATOM) for the Russian Federation. The purpose of the work is to understand the "field scale experiment" of radionuclide contaminated groundwater migration from a former surface repository at Lake Karachay towards the Mishelyak River. Field investigations of hydrogeological, geochemical, geophysical and radiometric measurements are being conducted to characterize and model the subsurface migration of the groundwater plume. The results of this program support Hanford vadose zone issues, including model verification and validation using the 30-year contaminant migration database developed by the Russian collaborators. American researchers in the program are from the Pacific Northwest National Laboratory, Savannah River Laboratory, and EML. Russian scientists are from Hydrospetzgeologiya, the Mayak Production Association and the Institute of Physics and Power Engineering. Funding for the program comes from the Characterization, Monitoring and Sensor Technology Crosscutting Program (CMST-CP) in EM-53.

IAEA Mission to Kazakhstan

EML scientists were part of an international team of experts whose mission was to perform a radiological assessment of the Former Soviet Union nuclear test site at Semipalatinsk and surrounding villages.

Radiological Evaluation at the Fissile Material Storage Facility

At the request of the Defense Nuclear Agency, EML participated in a joint Russian-United States radiological evaluation of the construction site for the Fissile Material Storage Facility (FMSF), located within the territory of the Mayak P.A. in Russia. The purpose of this health and safety survey was to assess the potential radiation exposure to U. S. personnel who will participate in the delivery, training and maintenance of construction equipment for the FMSF.

Radionuclides in the Arctic Ocean

EML investigated the status and fate of radionuclides in the Arctic marine ecosystem resulting from waste disposal practices in the Former Soviet Union (FSU). EML performed analyses to characterize the distribution of anthropogenic radionuclides (iodine, plutonium, and neptunium) in the Arctic Ocean as part of the Office of Naval Research's Arctic Nuclear Waste Assessment Program (ANWAP).

Remote Sampling and Analysis Systems

EML has designed, developed, and installed at worldwide locations integrated radioactive aerosol sampling and analysis systems that can collect, analyze and transmit results by satellite or telephone communications with a minimum of technician intervention. To date fourteen Remote Atmospheric Measurement Systems (RAMS) have been deployed, some in continuous operation since 1987. A fully automated and completely unattended multi-sample surface air monitoring system has been in continuous operation since November 1997. With a fully loaded sample tray, the system will allow over six months of unattended operation with weekly sampling.

DOE Arctic and Antarctic Policy Coordination

It is the Department's goals to encourage and support the important national and international scientific and engineering research programs required to carry out its policy as described in the United States Arctic and Antarctica Research Plans. As such, DOE supports the inter-agency Arctic Research Policy Committee (IARPC), the U.S. Antarctica Program (USAP) and the international Arctic Monitoring Assessment Program (AMAP). These activities are coordinated for the Department by personnel of EML.

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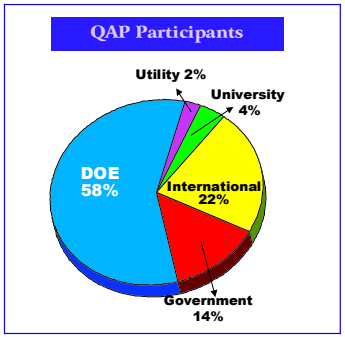
ANALYTICAL QUALITY ASSURANCE

International Participation in QAP

The Quality Assessment Program (QAP), administered by EML, is an external, independent performance evaluation of the quality of the environmental radiological measurements reported by contractor laboratories to the DOE. While this program was designed for environmental radiological investigations conducted in the United States, it has attracted international participants from the following countries: Canada, Argentina, Brazil, Russia, Republic of China, Costa Rica, Fiji Islands, France, Hungary, India, Pakistan, Korea, New Zealand, Poland, Yugoslavia, and Turkey. The QAP is addressing the global need for assurance that environmental radiological information is compatible and of known quality. Ultimately, the program could provide laboratories with a basis of comparison for the global community of environmental radiological laboratories



International Atomic Energy Agency Activities

Network of Analytical Laboratories

The IAEA invited EML to join its International Network of Analytical Laboratories (ALMERA). EML will represent the United States in this consortium of expert laboratories that can be mobilized quickly to collect and analyze samples following a nuclear accident anywhere in the world. EML analyzed samples collected in the atolls of Mururoa and Fangataufa in the French Polynesia for an IAEA study of the current and long-term radiological situation following French nuclear testing in 1996..

International Intercomparisons of Environmental Dosimeters

The International Intercomparisons of Environmental Dosimeters were initiated in 1974 to assess the performance of passive, integrating detectors in the measurement of environmental radiation and to identify and investigate special problems associated with such measurements. These voluntary intercomparisons, administered by EML, are presently the only available large scale and universally recognized quality assurance program for passive environmental dosimetry.

Visiting Scientist Program

In cooperation with the IAEA's Fellowship Program and those of other Institutes and Laboratories, EML's visiting scientist program fosters international exchange of scientific information by providing for the establishment of research projects and training assignments of mutual interest and benefit. During the past three years, scientists from Taiwan, Korea, Japan, Indonesia and Brazil have trained at EML for periods from three months to a year in areas covering environmental radiation, radiochemistry, and analytical chemistry.

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